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(19) **United States**(12) **Patent Application Publication** (10) **Pub. No.: US 2007/0024599 A1****Kent et al.**(43) **Pub. Date: Feb. 1, 2007**(54) **ACOUSTIC TOUCH SENSOR WITH
LOW-PROFILE DIFFRACTIVE GRATING
TRANSDUCER ASSEMBLY****Related U.S. Application Data**(63) Continuation of application No. 10/603,514, filed on
Jun. 24, 2003, now Pat. No. 7,119,800.(75) Inventors: **Joel C. Kent**, Fremont, CA (US);
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PA (US)**Publication Classification**(51) **Int. Cl.**
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MENLO PARK, CA 94025 (US)**(57) **ABSTRACT**

A touch sensor having an acoustic substrate, an acoustic transducer, and an acoustically diffractive grating is provided. The grating is disposed between the transducer and the substrate, so that acoustic energy from the transducer is coupled to an acoustic wave propagating along the surface of the substrate. If used in a display device, the combination of the transducer and grating may provide a low profile that allows the assembly to be more easily placed between the acoustic substrate and a bezel placed in front of the substrate. No acoustic components need be mounted on the rear surface of the substrate, allowing the acoustic substrate to be formed on the front surface of the display device.

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